



Quarterly Update

March 2002

ITRC springs into action at Salt Lake

The 2002 ITRC Spring Membership Meeting brought more than 210 ITRC participants to Salt Lake City in early March to start the ITRC ball rolling for the year. During March 4–6, 11 of ITRC's 15 technical teams for 2002 met to set the stage for their activities. A special two-hour orientation and POC refresher session helped acclimate 80 newly declared members and points of contact (POCs) to their new responsibilities. The first day concluded with a plenary session on the benefits ITRC offers to stakeholders, manufacturing and consulting industries, states, and federal agencies.

The Spring Membership Meeting was held in conjunction with the midyear reviews of DOE's Subsurface Contaminants and Deactivation and Decommissioning focus areas, providing opportunities for ITRC members to attend DOE sessions and interact with the DOE technology community. Jim Wright, field lead of the Subsurface Contaminants Focus Area, called SCFA's midyear review "the best ever" and attributed its success to ITRC, which brought the participation of states, industry, stakeholders, and academia to the event. The Radionuclides Team also held special meetings with representatives of DOE's Office of Science and Technology to discuss ways to strengthen an already positive relationship with ITRC.

An USEPA partnering session was held to explore ways ITRC could partner with the Nonaqueous Phase Liquid (NAPL) Cleanup Alliance, one of six active teams under the Remediation Technologies Development Forum. The State Engagement Team launched its program for the year with two full POC meetings and several breakout sessions. With this fresh start, the organization is up and raring to go into 2002.

ITRC solicits input to its evolving Five-Year Program Plan

You can help determine which technical areas ITRC will pursue over the next few years by submitting a project proposal to ITRC. In 2000, ITRC launched a multiyear planning process as a vehicle for accommodating a more strategic approach to defining and achieving goals. This process is also a democratic way to ensure that a broad cross section of member and stakeholder concerns are considered when planning ITRC's future activities.

Anyone may submit a project proposal. Instructions for submitting a proposal and the proposal format are on the Five-Year Program Plan (FYPP) page of the ITRC Web site (www.itrcweb.org). All proposals submitted to ITRC through June 1, 2002, will be considered for inclusion in the next FYPP update, which will cover the 2003–2007 period. The ITRC Board of Directors will make the final decision on which projects to include in the FYPP and is expected to make these decisions in August 2002 following the ITRC midyear review. The Board will rely on ranking recommendations from the state POCs, assessment of performance of

ongoing 2002 projects, perspectives of ITRC funding sponsors, and forecast revenues for the 2003–2007 period in determining which projects will be supported in 2003 and which projects can begin in subsequent years as additional funding becomes available.

The state POCs play an important role in setting the strategic direction for ITRC. POCs identify priority needs in the states, organize groups of states interested in specific projects areas, draft proposals, make priority recommendations to the ITRC Board, staff teams, and take the results of projects back to their home states to help their environmental agencies make better decisions. POCs are currently drafting proposals on concentrated animal feeding operations, led by Mary Ambrose (Tex.); hard rock mining, led by Julieann Warren (Mo.); underground injection control program requirements for remediation, led by Ken Marra (Mass.); indoor air contamination, led by Rob Weber (Kan.); mercury, led by Bill Mundy (Ga.); and risk and decision-making, led by Paul Hadley (Cal.). Additional proposals may be developed by the POCs based on state priorities.



2002 ITRC
spring
Membership
Meeting



March 4-7
Salt Lake City, Utah

Do these figures look familiar to you?

If imitation is the highest form of flattery, the Phytotechnologies Team can be justly proud of its guidance document, *Phytotechnology Technical and Regulatory Guidance Document* (April 2001). In 2001, the team became aware that four figures and a table had been lifted from its document and placed in *Natural and Enhanced Remediation Systems* without credit being given to either ITRC or the Phytotechnologies Team. The author has since apologized for his oversight and sent the publisher corrected information for the book's second printing, as well as an errata page for insertion into remaining copies of the first printing. While this incident points out the dangers of inadequately referencing sources, the Phytotechnologies Team can take heart that its work is getting noticed, making an impact, and being included in other documents. To help prevent similar incidents in the future, ITRC will register copyrights on past and future publications.

ITRC delivers training to your desk— 2002 ITRC Internet-based training

The ITRC Internet training program is expanding to 10 courses in 2002. ITRC began offering online training three years ago in conjunction with USEPA's Technology Innovation Office. Since then, ITRC has delivered training via the Internet to over 8,000 participants throughout the United States as well as worldwide. ITRC training sessions—typically two hours long—are based on ITRC-developed guidance documents and state-of-the-art technical and regulatory information associated with innovative environmental technologies. ITRC training events reach a geographically dispersed group of regulators, consultants, federal agencies, industry, and other members of the environmental community. Along with ITRC's guidance documents and network of experts, these training events provide resources to assist the environmental community in making quality, expedited decisions when determining the appropriateness of environmental technologies as part of effective environmental waste management.

The following courses will be offered by ITRC in 2002:

- ▼ Advanced Techniques on Installation of Iron-Based Permeable Reactive Barriers and Non-Iron-Based Barrier Treatment Material
- ▼ Constructed Treatment Wetlands
- ▼ Enhanced In Situ Bioremediation of Solvents in Groundwater
- ▼ In Situ Chemical Oxidation
- ▼ Natural Attenuation of Chlorinated Solvents in Groundwater: Principles and Practices
- ▼ Passive Diffusion Bag Samplers for Volatile Organic Compounds in Groundwater

- ▼ Permeable Reactive Barriers for Chlorinated Solvent, Inorganic, and Radionuclide Contamination
- ▼ Phytotechnologies
- ▼ Small Arms Firing Range Characterization and Remediation Technologies
- ▼ A Systematic Approach to In Situ Bioremediation

To access ITRC Internet-based training information and registration details, go to www.itrcweb.org and click on "Internet Training." Registration opens four to six weeks prior to each offering. Once registered for the seminars, participants are provided with details on how to access the "live" audio of the course and how to access the training materials. During the courses, participants have the opportunity to interact with instructors during question-and-answer periods. For additional information, contact Mary Yelken at myelken@westgov.org, (402) 325-9615.

Open membership period ends

The response to the 2002 open membership period, which culminated in the Spring Membership Meeting, was tremendous. During the recently concluded open membership period, 346 people responded to the call to affiliate with ITRC technical teams—a 25 percent increase in ITRC membership over last year's numbers.

These 346 technical team members fall into the following categories: 124 private (industry/consulting), 114 state, 38 DOD, 19 USEPA, 17 DOE, 12 university, eight stakeholder, five local government, four nongovernmental organizations, three USGS, and two from other groups. ITRC is pleased to have such a diverse group of advocates working together in 2002 for the acceptance of innovative environmental technologies.

Even though open membership has ended, you can still work with ITRC in 2002. If you still wish to join a team, you'll need to speak with the relevant team leader(s) or program advisor(s). See the Web site (www.itrcweb.org) under "Contacts" for team leader contact information.

STATE ENGAGEMENT— ITRC'S IMPLEMENTATION ARM

The ITRC State Engagement Team—composed of points of contact (POCs) from state environmental agencies—is off and running in 2002. New to the State Engagement Team are POCs Rob Weber (Kan.), Bill Mundy (Ga.), Naji Akladiss (Maine), Dee Ann Staats (W.V.), Joe Francis (Neb.), and David Lloyd (Nev.). Welcome aboard!

POCs facilitate ITRC communications and outreach in the states, serve as the quality assurance function for ITRC

products and services, and assist in their implementation. The POCs' wide range of responsibilities include identifying state priorities, developing proposals for the ITRC Five-Year Program Plan, facilitating state review and concurrence of ITRC technical and regulatory guidance documents, identifying and documenting ITRC successes and lessons learned, recruiting ITRC team members, and marketing ITRC products and services.

❖ ITRC Technical and Regulatory Guidance Document State Concurrence

The concurrence process serves to gain formal state commitment to use ITRC products and services. State concurrence on ITRC technical and regulatory guidance documents provides predictability for parties wanting to use an innovative environmental technology in an ITRC state. It means not that a state concurs on the technology, but that the state concurs with using the document as a decision-making tool to evaluate the appropriateness of the use of the technology at sites in the state. The POC in each ITRC state is responsible for having the appropriate personnel in the state agency review ITRC technical and regulatory guidance documents and establish the state's level of concurrence on each document. POCs then send a letter to the ITRC State Engagement coordinator indicating their states' level of concurrence on the specific document. This information is maintained and updated in a concurrence matrix, which is posted on the ITRC Web site's "Guidance Documents" page.

Three documents were released for concurrence in 2001:

- ▼ *User's Guide for Polyethylene-Based Passive Diffusion Bag Samplers to Obtain Volatile Organic Compound Concentrations in Wells (DSP-1)*
- ▼ *Technical and Regulatory Guidance for In Situ Chemical Oxidation of Contaminated Soil and Groundwater (ISCO-1)*
- ▼ *Phytotechnology Technical and Regulatory Guidance Document (PHYTO-2)*

Congratulations and thanks to the nine states that have fully concurred on all three documents: Alabama, Illinois, Louisiana, North Dakota, New York, Oklahoma, Oregon, Tennessee, and Vermont. Other states have concurred on some documents or have chosen Level B concurrence.

Several ITRC technical and regulatory guidance documents will be going through the concurrence process in 2002, including documents on a systematic approach to in situ bioremediation, constructed treatment wetlands, DNAPLs (characterization, thermal, surfactant flushing), and small arms firing range characterization and remediation technologies.

If you would like more information on ITRC State Engagement activities, please refer to the ITRC Web site at www.itrcweb.org or contact Paul Hadley (Cal.), ITRC State Engagement coordinator, phadley@dtsc.ca.gov, (916) 324-3823 or ITRC program advisors: Mary Yelken, myelken@westgov.org, (402) 325-9615 or Cain Diehl, diehl@sseb.org, (770) 242-7712. Your ITRC state POC is also an ITRC resource (see "Contacts" at www.itrcweb.org.)

TECHNICAL TEAM UPDATES

❖ Alternative Landfill Technologies (ALT)

The ALT Team is kicking off its first year in 2002. In February, the ALT Team increased its membership to 24 active members, with nine members coming from state environmental agencies, eight representing industry, three from universities, one from the Air Force, one from DOE, one from USEPA, and one from local government. The team held its first gathering at the ITRC Spring Membership Meeting. The team has divided itself into subteams: one team will focus on alternative landfill covers and the other on bioreactors. Each subteam will focus on the methods states most commonly use to oversee design, construction, and monitoring of alternative landfill covers and bioreactors. During the spring meeting, members presented several site-specific examples of time- and cost-consuming challenges to the beneficial deployment of alternative technologies and discussed solutions. This information will later be used to support the team's guidance documents and trainings. These products are sure to benefit everyone associated with landfills, including local citizens.

The team has begun bringing value to ITRC by identifying obstacles that currently impede the deployment of alternative landfill technologies, including:

- ▼ the lack of field-scale performance data for prescriptive or alternative designs,
- ▼ the difficult regulatory requirement to demonstrate equivalency to the material-based traditional cover design, and
- ▼ inflexible governing regulations.

By developing ITRC case studies in 2002, completing guidance documents in 2003, and conducting training in 2004, the ALT Team will reduce or eliminate these obstacles. The team will also serve as a resource to USEPA during its development of guidelines for the design, construction, and monitoring of alternative landfill covers for solid and hazardous waste. Charles Johnson (Colo.) leads the ALT Team. Reach Charles at (303) 692-3348, charles.johnson@state.co.us.

❖ **Brownfields**

This new team met for the first time during the 2001 ITRC Fall Conference in Long Beach. Over a five-year period, it plans to address the best ways to clean up and redevelop abandoned, underutilized, contaminated properties. Because regulatory and program guidance for brownfields cleanup and redevelopment is evolving, the Brownfields Team has an opportunity to raise the bar in the evaluation and remediation of these sites. The goal of the Brownfields Team is to develop guidance and workshops to facilitate the cleanup and reuse of brownfields properties.

The first major task of the team is working with the U.S./German Bilateral Working Group, a 10-year partnership of USEPA, New Jersey, and the German environmental ministry that has focused on the implementation of cleanup technologies in the two countries. Recently, the U.S./German Bilateral Working Group has been investigating a broad spectrum of activities related to brownfields redevelopment, including the analysis of scientific, economic, and social issues that impact brownfields reuse.

The initial focus of the Brownfields Team is to review documents being developed by the U.S./Germany Bilateral Working Group in the area of brownfields. The first such product is a Site-specific Management Approach and Redevelopment Tools (SMART) Plan. As part of the development of this plan, the Brownfields Team is helping the Bilateral Working Group identify model project sites to serve as case studies for the SMART Plan. The Bilateral Working Group is in the initial stages of developing the SMART Plan; a draft will be produced in 2002. The Brownfields Team has nominated approximately 30 model project sites from around the country—sites that are at various stages of being redeveloped. The sites that are further along in redevelopment can offer lessons learned and serve as case studies for the development of the SMART Plan, while sites that are just beginning the redevelopment process can serve as beta sites to test the draft SMART Plan. Terri Smith (N.J.) leads the Brownfields Team and can be reached at (609) 984-3122, tsmith3@dep.state.nj.us.

❖ **Constructed Wetlands**

The Constructed Wetlands Team, which began life in 2001 as a subteam of the Phytotechnologies Team, has begun to develop a technical and regulatory guidance document that will address the issues associated with the construction of man-made wetlands for the treatment of contaminants in water that flows through the wetlands. Constructed wetlands mimic the structure and function of natural wetlands, which have been called “nature’s kid-

neys” because of their ability to remove contaminants from water. Like other phytoremediation approaches, treatment wetlands are self-sustaining, which makes them an attractive option for water treatment compared to the lifetime operating costs of conventional treatment systems. While there is abundant literature on the technical aspects of designing and constructing wetlands, very little information exists on regulatory issues. The Wetlands Team will address this void. The current Internet and classroom courses on phytotechnologies provide only a brief mention of constructed wetlands, and leaders of the Wetlands Team have heard from many people about participating on the team and in using the completed ITRC document. These expressions of interest have led the team leaders to conclude that ITRC is an important and credible venue for preparing useable guidance for new environmental technologies.

The Wetlands Team finalized its 2002 work plan at the ITRC Team Leaders Meeting in February. The team has completed the outline of its technical and regulatory document and is beginning to incorporate pieces into a draft document. The team reviewed the first draft of the guidance document and developed an outline for an Internet-based course in March during the 12th Annual West Coast Conference on Contaminated Soils and Waters and the ITRC phytotechnologies classroom training in San Diego. The team plans to complete the document in 2002, including a decision tree; develop, test, and deliver an Internet-based training course (scheduled for November); and develop a training module for use during the existing ITRC classroom course on phytotechnologies. Seventeen people have already signed up for the team, and more are expected. Team members include representatives from Germany and Canada, academia, 10 U.S. states, USEPA, DOD, a community stakeholder, and a number of industry researchers and consultants. The Wetlands Team is led by Dib Goswami (Wash.) and Bob Mueller (N.J.). Dib can be reached at (509) 736-3015, dgos461@ecy.wa.gov; Bob can be reached at (609) 984-3910, bmueller@dep.state.nj.us.

❖ **Contaminated Sediments**

USEPA estimates that about 10 percent of sediment underlying surface water in the United States is sufficiently contaminated with toxic pollutants to pose potential risks to fish and to humans and wildlife that eat fish. The discharge of heavy metals, PCBs, and PAHs by seaports and other industries impacts the toxic nature of sediments. To support navigation, seaports and harbors dredge contaminated sediments, leading to the problem of how best to dispose of this material. The Sediments Team is a new team for 2002 and was formed to address

management of large volumes of dredged materials and contaminated sediments in lakes, streams, estuaries, navigational channels, and harbors using innovative technologies. The Sediments Team is in the process of defining an exact work plan for the year. The team did not meet in March at the ITRC Spring Membership Meeting but is planning to meet later this year. The team will hold conference calls approximately once monthly. The team's work plan is posted on the team page of the Web site, and comments are requested from team members and interested parties. Rich DeWan of New Jersey is leader of the Sediments Team and can be reached at (609) 777-1914, rdewan@dep.state.nj.us.

❖ **Dense Nonaqueous Phase Liquids (DNAPLs)**

2002 promises to be an even busier year than last for the DNAPLs Team as it works toward the release of four guidance documents and begins development of associated training modules. The long-awaited regulatory overview entitled *DNAPL Source Reduction: Facing the Challenge* has been circulated for final POC review after undergoing external review and will be published in May 2002. Presently, the team is focused on preparing three technical and regulatory guidance documents, which are scheduled for release in the fall. The working titles of these documents are

- ▼ *Guidelines for Characterizing DNAPL Contamination,*
- ▼ *Surfactant/Cosolvent Flushing Guidance Document,* and
- ▼ *Regulatory Guidance for In Situ Thermal Remediation of DNAPL Source Zones.*

In addition, the DNAPLs Team is tracking approximately 20 sites where innovative DNAPL remediation technologies are being deployed and has drafted a half dozen case summary reports that will serve to "ground truth" its documents. The team is also collaborating with the U.S. Army Corps of Engineers and USEPA's Technology Innovation Office on development of an engineering manual for in situ thermal remediation. Specifically, the DNAPLs Team will be writing sections pertaining to regulatory issues and contributing case summaries. Eric Hausmann (N.Y.) leads the DNAPLs Team and can be reached at (518) 402-9759, eghausam@gw.dec.state.ny.us.

❖ **Diffusion Samplers (DS)**

The Diffusion Samplers Team has continued to expand and enhance its Web site—the Diffusion Sampler Information Center (DSIC)—with the hope that DSIC will become the premier Internet resource for diffusion

sampling protocols and technology. A recently added library section includes a bibliography and a collection of presentations on passive diffusion bag (PDB) samplers, as well as site-specific documents. Another new feature is a public forum area for the discussion of passive diffusion bag sampling technology. Visit DSIC at <http://ds.itrcweb.org>. We welcome comments and suggestions for improvements. The DS Team demonstrated DSIC during the Spring Membership Meeting.

Also at the spring meeting, the DS Team discussed a passive diffusion bag sampler decision tree and started developing an ITRC position paper on PDB samplers. The team heard reports on recent demonstration activities at McClellan and Mather Air Force bases. Representatives from manufacturers of commercially available PDB samplers described the manufacturing process and shared comments from the field. Dr. Don Vroblesky of USGS presented the current state of PDBS technology and applications. The states of Arizona and New Jersey are each working on guidance for diffusion sampler use, and their approaches were discussed at the meeting.

Four classes of the Internet-based training course on PDB samplers are planned this year. The training focuses on the compounds for which this method is appropriate and presents a procedure for standardizing the use of diffusion samplers in wells. Tentative dates for the course are March 26, May 16, August 15, and September 24. Log onto DSIC for details.

The DS Team recently acquired several new members: Michael Crane from the U.S. Army Corps of Engineers; Sandra Gaurin with BEM Systems, Inc.; Ron Hoepfel with the Naval Facilities Engineering Service Center; Barry Weand with Mitretek Systems; Mark Weeger from the Texas Natural Resources Conservation Commission; and Dick Willey from USEPA, Region 1. We welcome their participation. Contact information is available on DSIC. George Nicholas (N.J.) is the leader of the DS Team and can be reached at (609) 984-6565, gnichola@dep.state.nj.us.

❖ **In Situ Bioremediation (ISB)**

The ISB Team worked on finalizing *A Systematic Approach to In Situ Bioremediation* during the ITRC Spring Membership Meeting. Bart Faris, coleader of the ISB Team, says that this document is really four documents in one. To help users decide if ISB is applicable to their site, the document presents a generic approach and contains guidelines, a decision tree, and basic information on evaluating ISB at a specific site. The document

also contains three modules/decision trees, which demonstrate how the generic approach can be modified by plugging into it information on three specific contaminants found in groundwater: nitrate compounds, perchlorate, or carbon tetrachloride. The goal is for readers to use the document in developing an ISB approach for any contaminant, not just the three contaminants offered in the document. Along with document preparation, the ISB Team is also preparing for Internet training based on *A Systematic Approach to In Situ Bioremediation*, which the team will present three times in 2002. Bart Faris (N.M.) leads the In Situ Bioremediation Team. Reach Bart at (505) 841-9466, bart_faris@nmenv.state.nm.us.

❖ **MTBE-Contaminated Groundwater**

MTBE (methyl tertiary-butyl ether) is almost exclusively used as a fuel additive in motor gasoline. Because MTBE raises the oxygen content of gasoline, it and similar chemicals are known as oxygenates. Oxygen helps gasoline burn more completely, reducing harmful tailpipe emissions from motor vehicles. However, MTBE and other oxygenates may be harmful when gasoline spills from underground storage tanks lead to contamination of groundwater. Research into remediation technologies that are effective for MTBE has only recently begun, and the MTBE-Contaminated Groundwater Team plans as its initial contribution to develop a technology overview of treatment technologies.

The MTBE Team is only partially funded for 2002; but interest is building among the states, and industry is sure to follow. Currently, the USEPA Technology Innovation Office and Region 9, two companies, and eight states are committed to the team as active members. Texaco and the University of Nebraska attended the spring team meeting as well. MTBE contamination in groundwater is a very controversial issue, and the entire topic of oxygenates may be incorporated into the team's remediation technology overview. The team finalized the scope of interest at its spring meeting and will begin to build the team Web pages into an information source for the review required during preparation of its technology overview during 2002. Fred McGarry (N.H.) leads the MTBE Team. Fred can be reached at (603) 271-4978, fmcgarry@des.state.nh.us.

❖ **Permeable Reactive Barriers (PRBs)**

The ITRC Permeable Reactive Barriers Team has been offering introductory and advanced Internet training on site characterization and design of reac-

tive barriers for nearly two years. These Internet training courses will continue to be offered this year. In addition, the team, led by Matt Turner (N.J.), has been working with DOE, USEPA, and DOD reviewing long-term monitoring and wall performance data. Given the positive results from the triagency studies, the PRBs Team has participated in the development of a guidance document on long-term performance monitoring, which will be available in draft during March 2002. Matt has revived the PRBs Team and added new members to review the draft document simultaneously with the ITRC POCs' review. If possible, given the compressed review schedule, comments will be finalized at the Remediation of Chlorinated and Recalcitrant Compounds Conference in Monterey, Cal., on May 20–23.

The PRBs Team is also planning to partner on follow-up research to the three-year triagency project that just concluded. The proposal will likely address the time required for down-gradient water quality to show improvement after a permeable reactive barrier is installed within a groundwater plume. Work may begin midyear depending on funding availability. Team leader Matt Turner can be reached at (609) 984-1742, mturner@dep.state.nj.us.

❖ **Radionuclides (RADs)**

The Radionuclide Team's second document—*Determining Cleanup Goals at Radioactively Contaminated Sites: Case Studies*—is currently undergoing peer review and is expected to be available by May. At DOE's request, RADs Team representatives made presentations at two conferences: "Environmental Stewardship: Promising Solutions to Uncertainty" in New Orleans and the Long-Term Stewardship Science and Technology Roadmap Work Group meeting in Dallas. Members participated in the team leader kick-off meeting, monthly team calls, and the ITRC Spring Membership Meeting. The RADs Team is led by Tom Schneider (Ohio), who can be reached at (937) 285-6466, tom.schneider@epa.state.oh.us, and Carl Spreng (Colo.), who can be reached at (303) 692-3358, carl.spreng@state.co.us.

❖ **Remedial Process Optimization (RPO)**

The Remedial Process Optimization Team seeks to join forces with RPO (also known as remedial system optimization or remedial system evaluation) teams from the military services or federal agencies in investigating ways to optimize various remediation and long-term monitoring systems. By working with RPO teams from the Air Force, Navy, the U.S. Army Corps of Engineers, or USEPA, the ITRC RPO Team hopes to establish a multiagency team to implement a better process for

improving remediation and monitoring systems.

Potential projects include

- ▼ evaluating results of optimization studies conducted by military services or other agencies to understand why some recommendations are adopted while others are rejected,
- ▼ reviewing and providing regulatory and technical input on site visit reports and technical documents, and
- ▼ developing a guidance document that summarizes available technical approaches to remedial process optimization and identifies key regulatory issues and concerns for implementing RPO recommendations.

The team plans to begin by working with the U.S. Air Force in conducting RPO reviews at installations in California falling under the Air Force Base Conversion Agency. A remedial process optimization review is a technical and programmatic assessment of an installation's cleanup system performance and effectiveness to achieve site closure. The team will focus on opportunities to optimize cleanup and contain costs.

During the ITRC Spring Membership Meeting, the team discussed presentations from the Federal Remediation Technology Roundtable meeting on RPO held in December 2001 and RPO efforts undertaken in California by the Air Force Base Conversion Agency. The team also scheduled a phone call to update its portion of the ITRC Five-Year Program Plan. Team member Lazlo Saska (Cal.) provided the group with an update of his participation in the Norton Air Force Base RPO site visit held in February. Tom O'Neill leads the RPO Team and can be reached at (609) 292-2150, toneill@dep.state.nj.us.

❖ **Sampling, Monitoring, and Characterization (SMC)**

The Sampling, Monitoring, and Characterization Team, new in 2002, is in the process of defining a work plan for the year. Areas of interest to the team that represent new paradigms in SCM include real-time information, continuous monitoring, and dynamic work plans. The team has generated a lot of interest, with 23 people already submitting membership forms. States represented on the team include Missouri, Vermont, California, Kentucky, Massachusetts, South Carolina, Arizona, Texas, Delaware, and New Jersey. Members are involved in SMC-type activities already, including a study being conducted by Florida University to catalogue innovative sampling techniques and a survey being conducted by the New Jersey Institute of Technology on state implementation of innovative SMC technologies. The team met during the ITRC

Spring Membership Meeting and has plans to meet in June at Port Hueneme, Cal. The team leader is Stuart Nagourney (N.J.), who can be reached at (609) 292-4945, snagourney@dep.state.nj.us.

❖ **Small Arms Firing Range (SMART)**

The Small Arms Firing Range, or SMART, Team met January 31 and February 1 to review its draft technical/regulatory document and assign missing sections and major revisions to existing sections. Stacey French (S.C.), Thomas Keefe (Mass.), and Satish Kastury (Fla.) are revising the section on regulating small arms firing range cleanups. Charles Harmon and Mike Burkett are working with other industry representatives to include sections on ecological risk and geochemistry of lead munitions in the environment. The document is scheduled for release in August. Those attending the team meeting also developed an outline for the SMART Team's Internet-based training, which is being developed. The team will conduct a dry run of its Internet course with ITRC POCs in August. Full Internet-based trainings are scheduled for September 26 and November 19, 2002.

The team is also making plans to develop its second document, a management and maintenance guidance for operating small arms firing ranges. The guidance will describe how firing ranges can be designed to prevent lead contamination and exposure. In preparing to write the document, the team is researching state programs and initiatives designed to educate and support environmentally safe management of small arms firing ranges. The team, which wants to assist the industry in more environmentally conscious designs, is working toward the goal of producing a draft document by the end of 2002. The SMART Team thanks Rick Patterson and the National Shooting Sports Foundation for hosting the SMART Team meeting at their annual trade show. The SMART Team is led by Dib Goswami (Wash.) and Bob Mueller (N.J.). Dib can be reached at (509) 736-3015, dgos461@ecy.wa.gov; Bob can be reached at (609) 984-3910, bmueller@dep.state.nj.us.

❖ **Unexploded Ordnance (UXO)**

The UXO Team completed course content for UXO Basic Training and has made final preparations for four full training sessions in 2002. ITRC cosponsored the first course on March 26–27 in Charleston, S.C., in conjunction with the South Carolina Department of Health and Environmental Conservation. Attendees of the two-day event received up-to-date information on ordnance identification, regulations, technology, and site characterization and remediation. The course was highly anticipated by DOD and USEPA as a means of complementing existing UXO training primarily targeted to federal envi-

ronmental managers and field personnel. Additional trainings are tentatively set for Boston (May), Seattle (July), and Monterey, California (December). The UXO Team will also conduct an abbreviated version during the September 2002 UXO Countermine Forum in Orlando. Registration opens four to six weeks prior to each training event via the ITRC Web site at "Classroom Training." General information is available by calling (540) 557-6065.

The UXO Team met in late January to begin outlines for two technical and regulatory guidance documents tentatively scheduled for release in late 2002 or early 2003. The first—on ordnance and explosives (OE) historical records—will assist state regulators, community stakeholders, and federal partners with collecting, organizing, and assessing available, site-specific UXO data. When final, the document will provide a useful framework for those involved in initial phases of UXO site investigation.

A second document—on geophysical site proveouts—will include up-to-date information on geophysical detection systems, regulations, and technical requirements. Both

documents represent the first multistate-reviewed references available on OE/UXO. Six additional documents are planned for 2003–2007, covering topics from sampling plan development to postremediation considerations.

The UXO Team is led by Jeff Swanson (Colo.) and Jennifer Roberts (Alaska). Jeff can be reached at (303) 692-3416, jeffrey.swanson@state.co.us. Jennifer is at (907) 269-7553, jennifer_roberts@envircon.state.ak.us.

CONTACTS

For questions or comments regarding ITRC, please contact Rick Tomlinson, ITRC program director, Environmental Council of the States, (202) 624-3660, rickt@sso.org.

To provide comments, suggestions, or input for ITRC's *Quarterly Update*, please contact Elaine Specht, WPI, (540) 557-6071, elaine_specht@wpi.org.

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